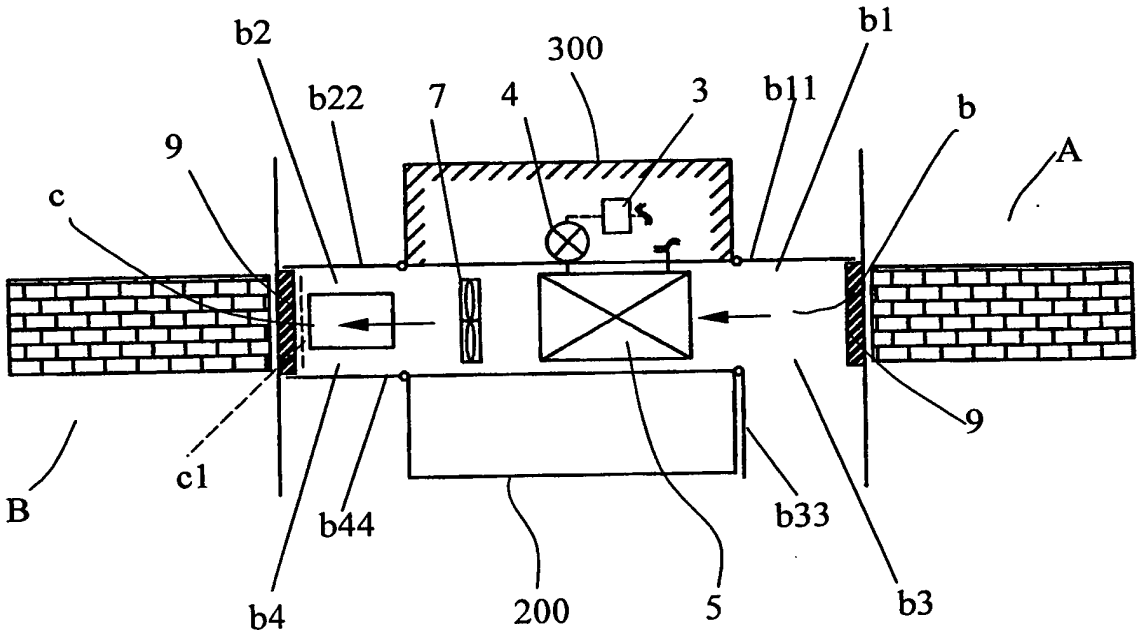
b2
300
b1
b22
7
4
3
b11
b
9
A
c
9
c1
B
b44
b33
b4
200
5
b3

FIG. 1

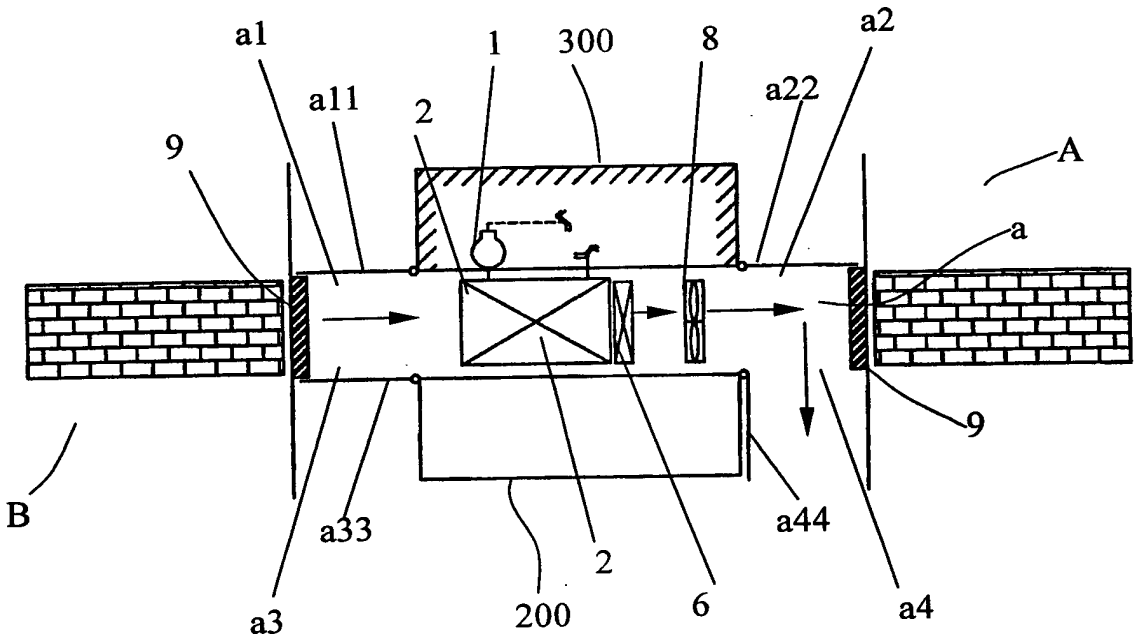
a1
1
300
8
a2
a11
2
a22
9
A
a
9
B
a33
a44
2
a3
200
6
a4

FIG. 2

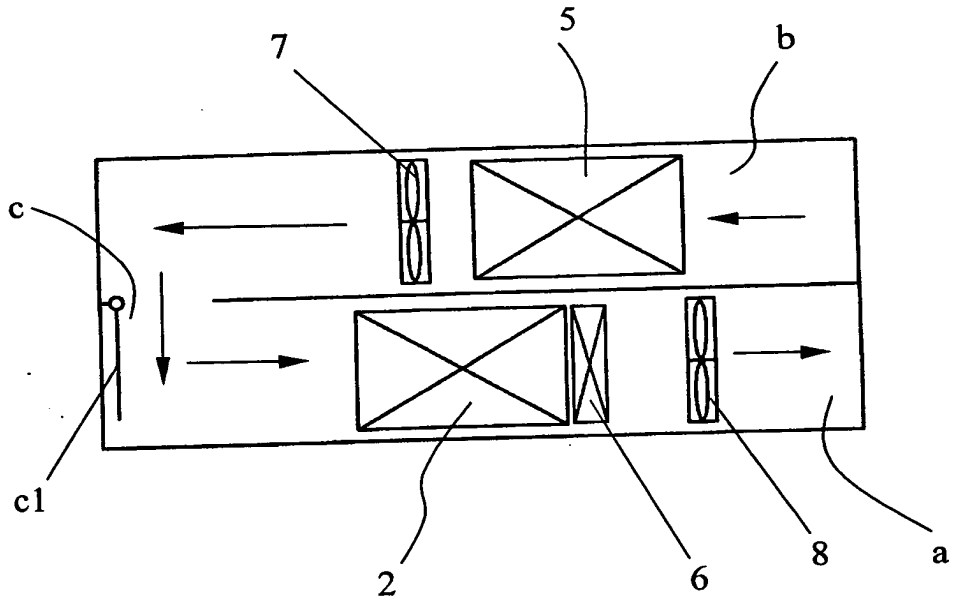

FIG. 3

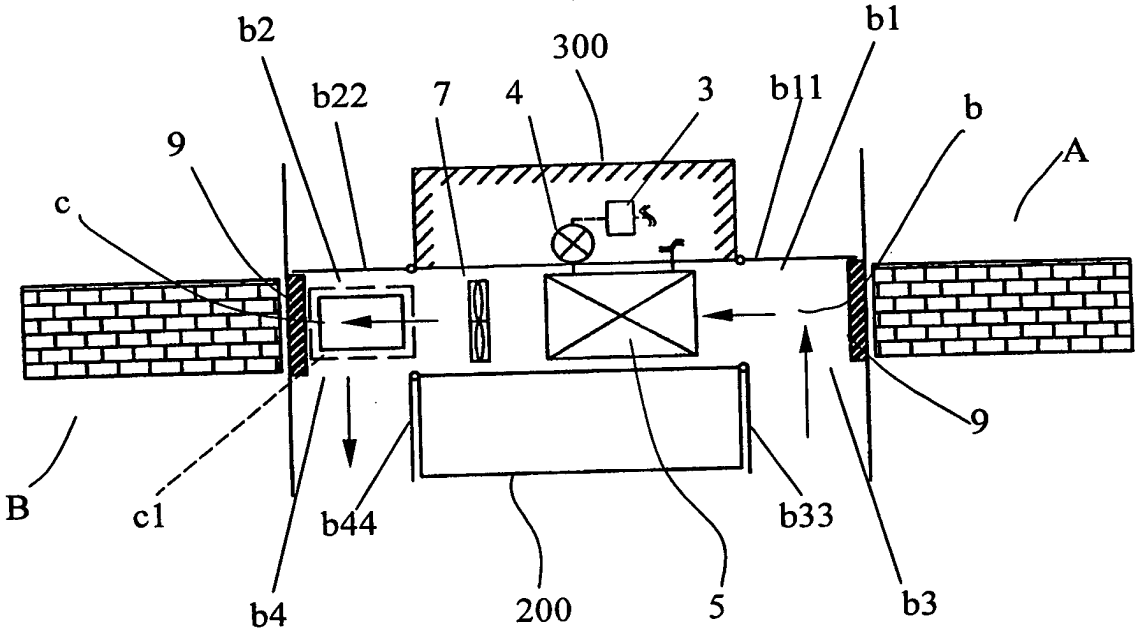

FIG. 4

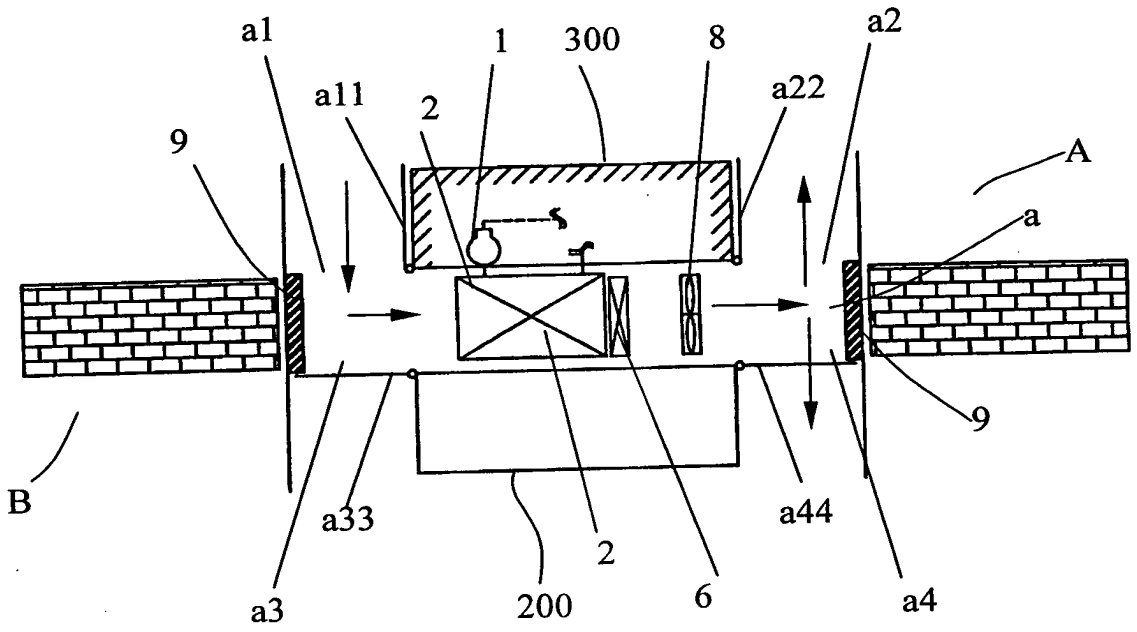

FIG. 5

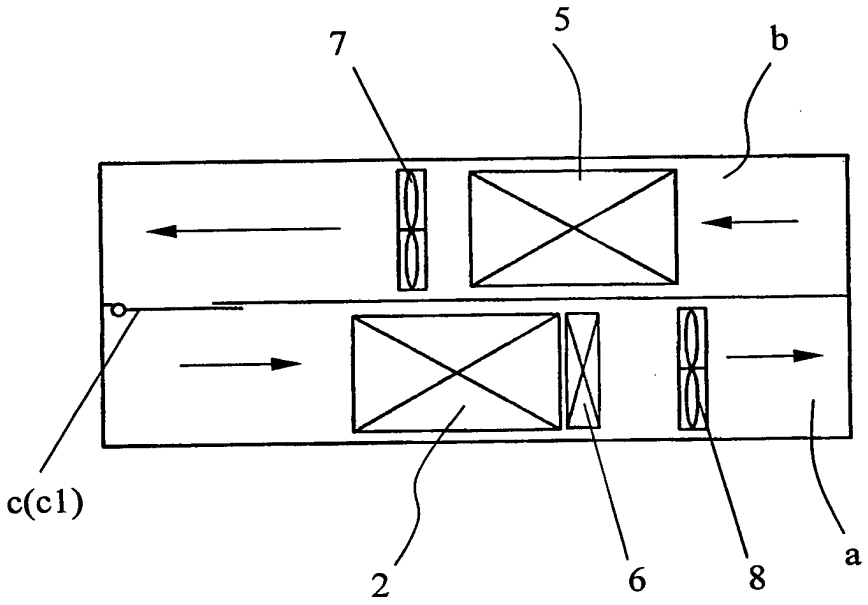

FIG. 6

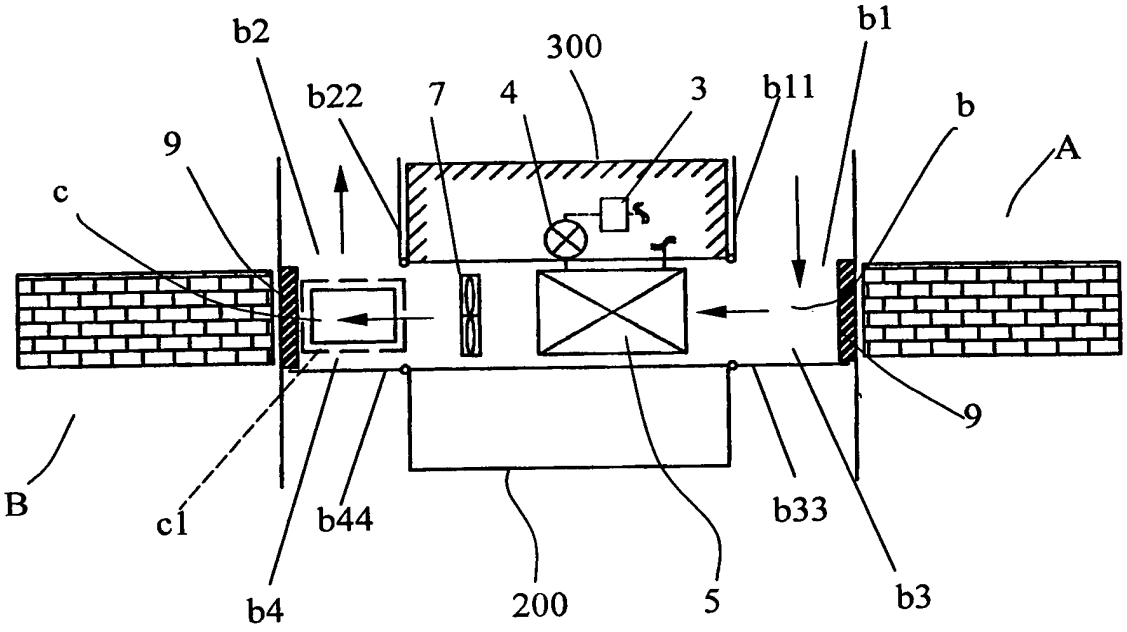
b2
300
b1
b22
7
4
3
b11
b
9
A
c
9
B
c1
b44
b33
b4
200
5
b3

FIG. 7

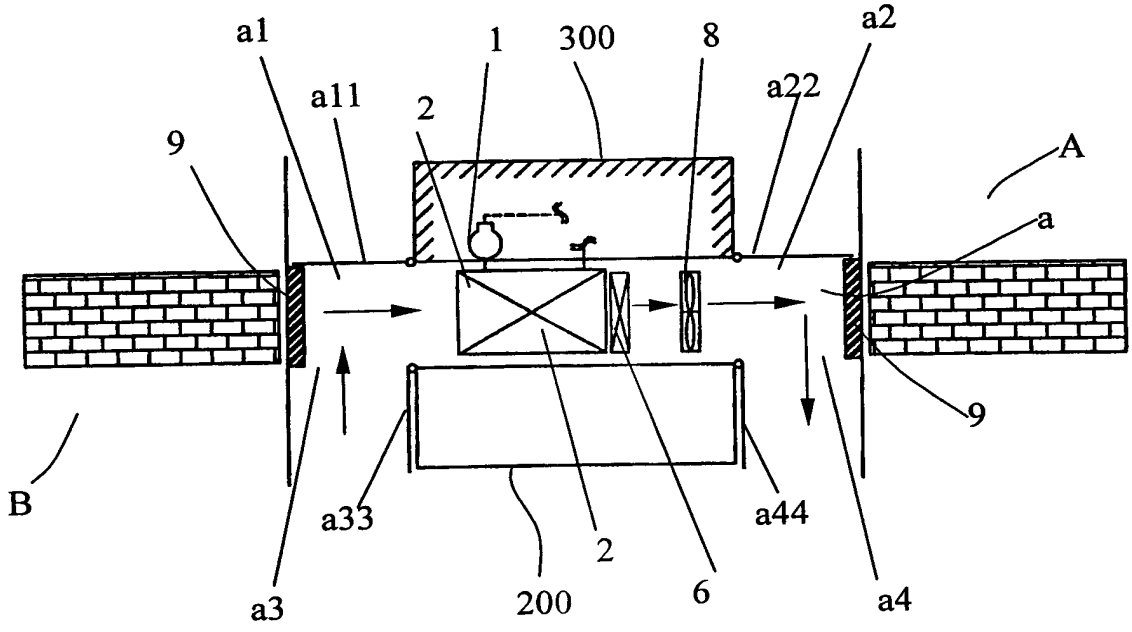
a1
1
300
8
a2
a11
2
a22
9
A
a
9
B
a33
a44
2
200
6
a3
a4

FIG. 8

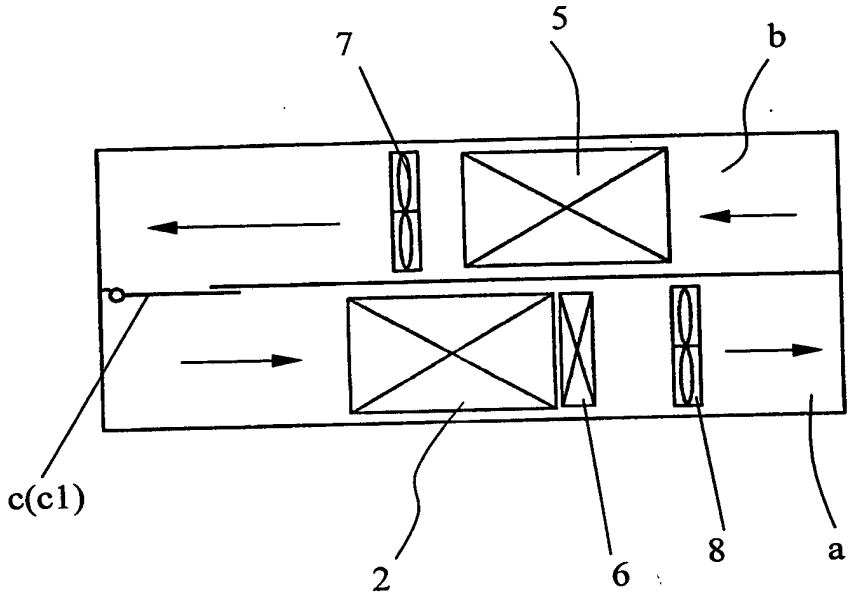

FIG. 9

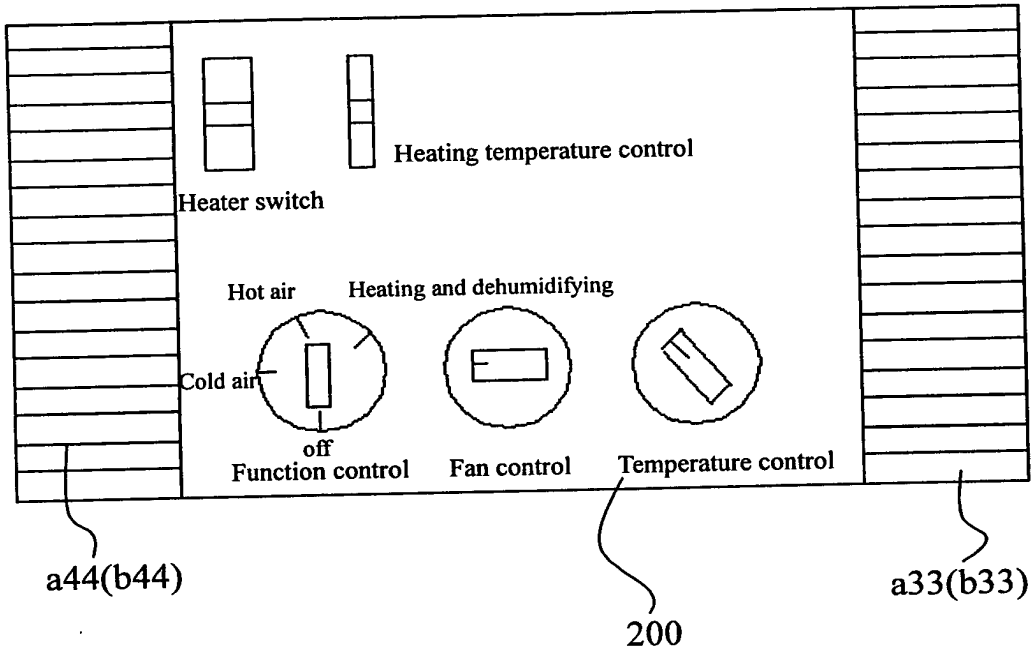

FIG. 10 (a)

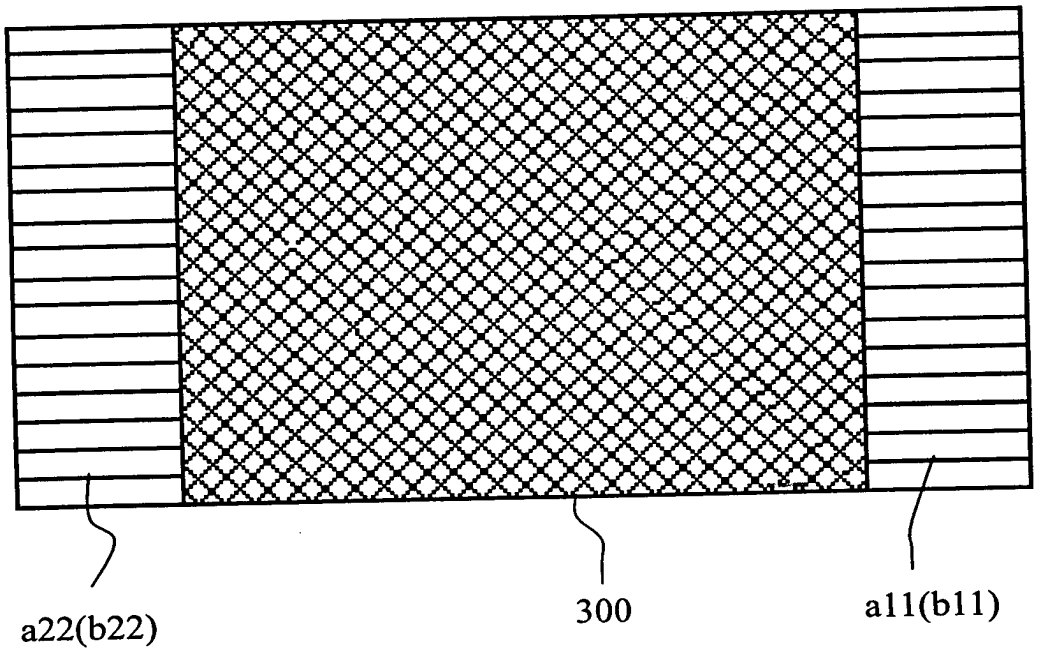

FIG. 10 (b)

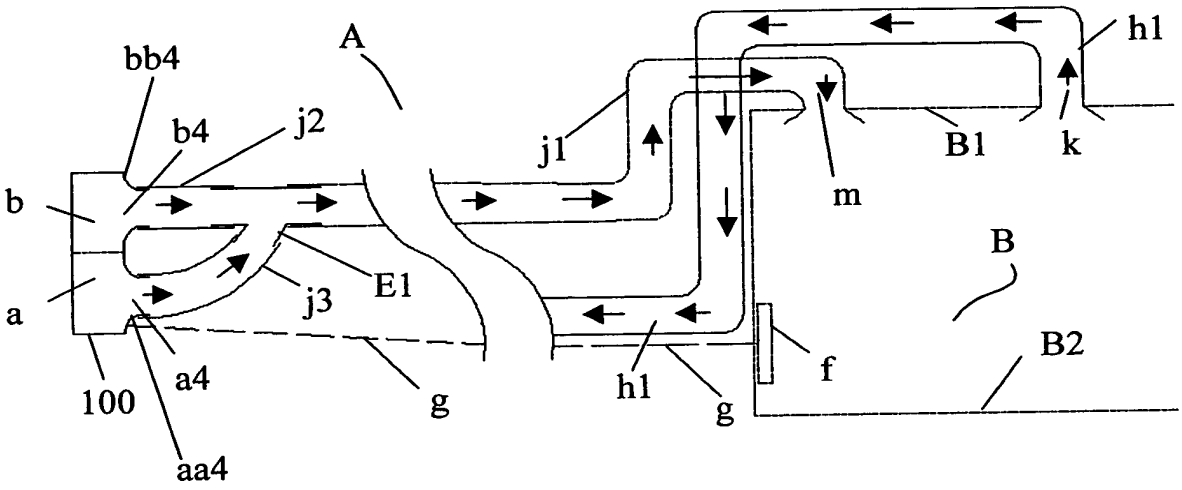

FIG. 11 (a)

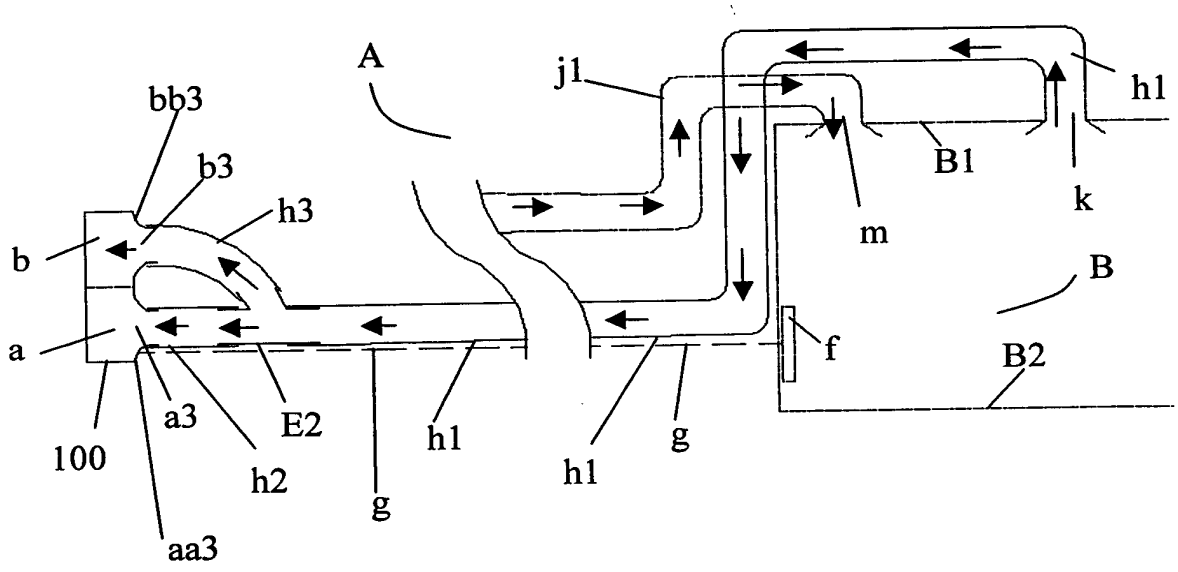

FIG. 11 (b)

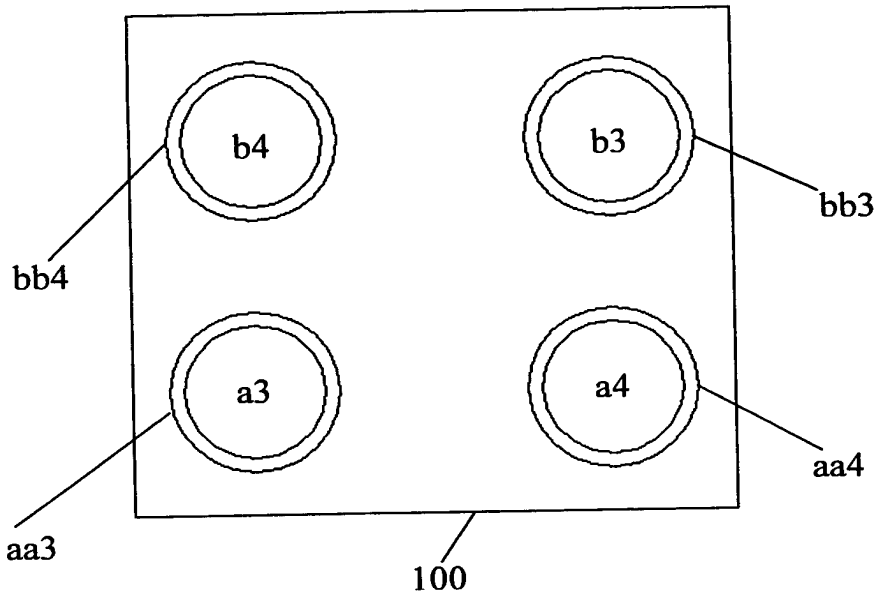
b4
b3
bb3
bb4
a3
a4
aa4
aa3
100

FIG. 12

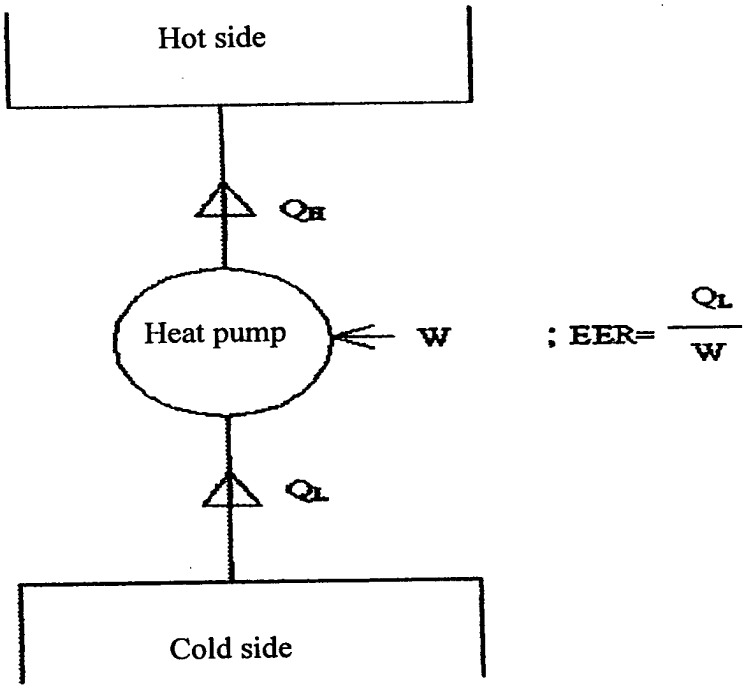
Hot side
Q_H
Heat pump
W
Q_L
Cold side
; EER= $\frac{Q_L}{W}$

FIG. 13

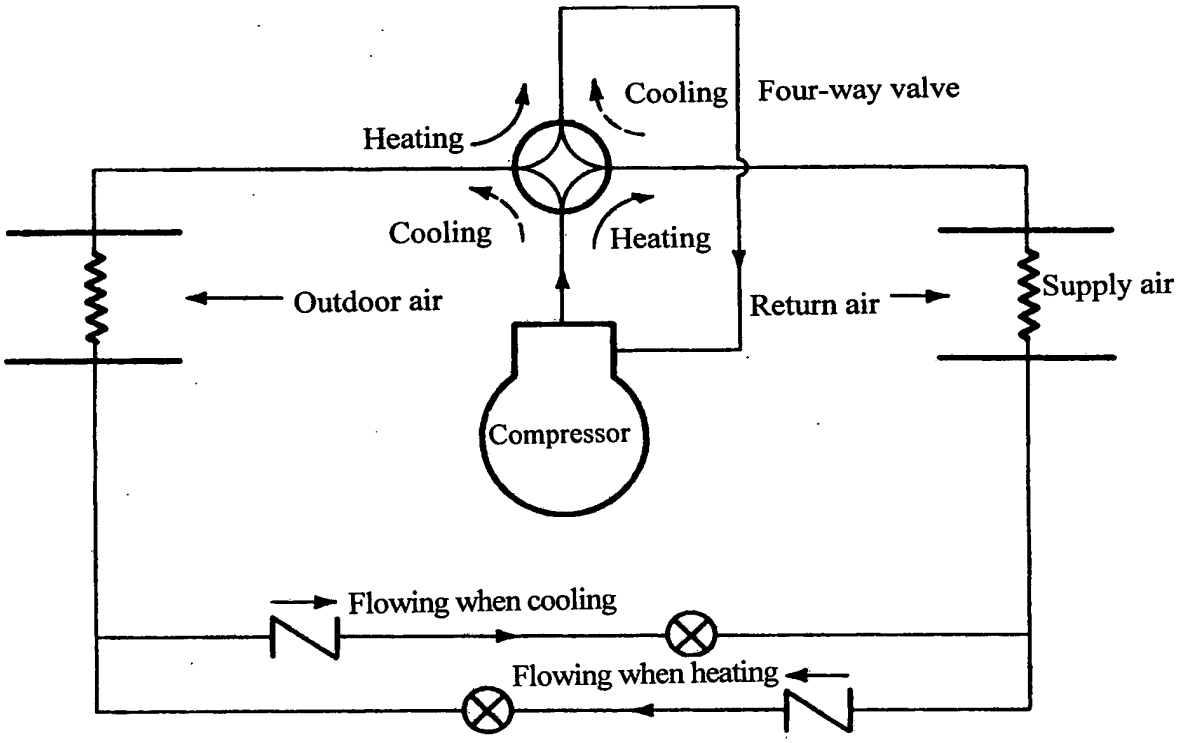
Cooling
Four-way valve
Heating
Cooling
Heating
Outdoor air
Return air
Supply air
Compressor
Flowing when cooling
Flowing when heating

FIG. 14